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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,291	06/13/2001	Ravindra U. Shenoy	01-091 1496.00113	5224

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EXAMINER

AGDEPPA, HECTOR A

ART UNIT

PAPER NUMBER

2642

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/880,291

Applicant(s)

SHENOY ET AL.

Examiner

Hector A. Agdeppa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/13/2001 12/3/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/3/2001</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 5 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "said second filtering." There is insufficient antecedent basis for this limitation in the claim.

Examiner believes applicant intended the limitation to be said second filter. However, as presently claimed, there is no mention of "filtering" beforehand.

Claim 15 recites the limitation "said input signal." There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "said upconverted signal." There is insufficient antecedent basis for this limitation in the claim.

Examiner believes applicant intended claim 15 to read "... (A) generating a[n] upconverted signal..." instead of the presently claimed "... (A) generating a downconverted signal..." For examination purposes, examiner will use this assumption.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 8, 9, 12, 14, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,545,728 (Patel et al.)

As to claims 1, 14, and 15, Patel et al. teaches a system and method for digitizing signals using triple conversion, wherein a first circuit generates an upconverted signal in response to an input signal from antenna 6 or an alternative source and a first oscillation signal from a frequency synthesizer 11 which functions as a first local oscillator. (Col. 10, lines 1 – 5) Patel et al. further teaches a second circuit generating a downconverted signal in response to the afore-mentioned upconverted signal and a second oscillation signal from a second local oscillator 16. (Col. 10, lines 32 – 37) Finally Patel et al. teaches a third circuit generating an output signal in response to the aforementioned downconverted signal and a third oscillation signal from a third local oscillator 20, wherein third local oscillator 20 is a fixed-frequency oscillator and the frequency and phase of the oscillation signal from second local oscillator 16 is controlled so that alignment of a second intermediate frequency (IF) signal with a second SAW filter 18 can be assured. In other words, the third oscillation signal is derived from the second oscillation signal. (Col. 18, lines 40 – 44)

Note that the purpose of the upconverting and downconverting is to remove unwanted image frequencies from the final output, i.e., unwanted channels. (Col. 10, lines 9 – 11, lines 37 – 39, lines 54 – 56)

As to claims 8 and 19, Patel et al. teaches providing selectivity via SAW filters and uses if necessary gain amplifiers to provide ample gain while not degrading the quality of the input signal as well as reducing noise, linearity, and distortion. (Col. 5, lines 50 – 58, Col. 10, lines 12 – 67)

As to claim 12, Patel et al. teaches that the above functionality resides in and is used to effect a tuner 5. (Col. 9, lines 66 – 67 and Fig. 1)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 2, 3, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,545,728 (Patel et al.) in view of US 6,118,811 (Narumi et al.)

As to claims 2, 3, 16, and 17, Patel et al. has been discussed above. Patel further teaches that the first circuit comprises a first mixer 12 and a first LC filter 13 coupled to first mixer 12, wherein LC filter 13 outputs an intermediate frequency filter and receives the first oscillation signal discussed above. (Fig. 1, Col. 10, lines 5 – 17 of Patel et al.)

What Patel et al. does not teach is the use of a low noise amplifier to receive the input signal.

However, such is extremely old and well known in the art as one of a plurality of ways and means to receive an input signal in preparation for conversion as taught by Narumi et al. (Fig. 1, Col. 2, line 66 – Col. 3, line 5, Col. 4, lines 13 – 21 of Narumi et al.) Low noise amplifiers are needed in certain situations to overcome losses or to amplify a signal in preparation for processing.

Although, Patel et al. does not use a low noise amplifier, it would have been obvious for one of ordinary skill in the art at the time to have used one inasmuch as the tuner of Patel et al. simply does not need one upon initial receipt of a signal in the discussed embodiment. However, as discussed above, Patel et al. contemplates receiving input signals from alternate sources and in such cases, a low noise amplifier

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may very well be needed. Moreover, Patel et al. teaches that in certain embodiments insertion of an amplifier is necessary to overcome insertion losses as would be the case if a low noise amplifier would be used. (Col. 10, lines 60 – 67 of Patel et al.)

4. Claims 4 – 7, 13, and 18 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,545,728 (Patel et al.) in view of US 4,618,863 (Collins).

As to claims 4, 5, and 18, Patel et al. has been discussed above as teaching a second circuit for downconversion. Patel et al. further teaches that the second circuit comprises a second mixer 17 for receiving the upconverted signal and a second SAW filter 18 (producing an intermediate frequency signal) for receiving the signal outputted from second mixer 17. (Col. 10, lines 32 – 67 of Patel et al.)

What Patel et al. does not teach is using a mixer pair and a summation circuit.

However, using mixer pairs in place of a single mixer is extremely old and well known in the art as taught by Collins. (Fig. 1, Col. 3, lines 23 – 32 of Collins)

Patel et al. simply uses a single mixer to accomplish what can also be done using a mixer pair. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used either configuration/method since the functionality is the same.

Collins also teaches that signals may be converted into in phase and quadrature phase signals. (Col. 3, lines 24 – 26 of Collins)

Patel et al. merely teaches generating the in phase and quadrature phase signals at a later point. (Col. 20, lines 41 – 47 of Patel et al.)

Again, the functionality of the claimed invention is taught but is merely performed at a different point because such is merely a design choice or preference, wherein the end output signal/result is the same,

Note that the claimed summation circuit is necessary in any apparatus wherein 2 signals are inputted, split, etc. There must be some way to re-combine the signals. Even Patel et al. teaches adding the in phase and quadrature phase output signals. (Col. 20, lines 47 – 54 of Patel et al.)

As to claims 6, 7, 13, 19, and 20, see the rejection of claims 4, 5, and 18. The same reasoning and explanation discussed with regards to claims 4, 5, and 18 apply her as well inasmuch as Patel teaches using again a single third mixer 21. (Fig. 1, Col. 11, lines 1 – 14 of Patel et al.) Note that the third mixer 21 acts as a filter as well. (Col. 5, lines 45 – 50, Col. 13, line 61 – Col. 14, line 10 of Patel et al.)

As to the claimed limitation wherein the third filter is a SAW filter, as discussed above, Patel et al. teaches using SAW filters. Using a SAW filter instead of a mixer with filtering capabilities is merely an obvious design choice or preference for one of ordinary skill in the art at the time the invention was made. As discussed above, regarding the second circuit, a SAW filter 18 was used to reject unwanted imaged. Patel et al. teaches that mixer 21 acting as a filter, also rejects or suppresses unwanted images. (Col. 5, lines 45 – 53 of Patel et al.)

5. Claims 10, 11, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,545,728 (Patel et al.)

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Patel et al. teaches that that the tuner 5 and the circuitry discussed above can be implemented on single or multiple integrated circuits or monolithic integrated circuits. Microchips themselves are simply microminiature integrated circuits. (Col. 19, lines 1 – Col. 20 , line 40 of Patel et al.) Therefore, implementing such on either a single or multiple microchips is merely a design choice or preference. Such would merely depend on the components used to effect the circuitry. Just as transistors took the place of vacuum tubes, microchips took over larger circuits.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,230,097 (Currie et al.) teaches a double conversion circuit. US 6,321,075 (Butterfield) teaches a transceiver with a digital-to-analog double converter.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hector A. Agdeppa whose telephone number is 703-305-1844. The examiner can normally be reached on Mon thru Fri 9:30am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad F. Matar can be reached on 703-305-4731. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

H.A.A.

November 19, 2004

HECTOR A. AGDEPPA
PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'H.A. Agdeppa', is written over the printed name and title.